

February 20, 2013

Dear members of the Committee on the Natural Resources, Environment, and Great Lakes:
Senate Bill 78 concerns us, as Michiganders and as biologists studying plant ecology and evolutionary biology at Michigan State.

Preserving biodiversity has direct economic benefits for Michigan. Land that is preserved for biodiversity may not sound like an important use on the surface, but in fact, **conservation areas are providing critical, economically valuable services**, that all Michiganders rely on. Globally, "ecosystem services and natural capital" are worth an average of \$33 trillion per year [1]. "Ecosystem services" highlighted in this research article should be familiar to Michigan farmers, timber harvesters, outdoor enthusiasts, urban planners, and lawmakers:

Water regulation	Waste treatment	Biological control
Water supply	Crop pollination	<i>(controlling the spread of</i>
Food production	Recreation, tourism	<i>crop and timber pests, and</i>
Erosion control	Cultural	<i>human disease vectors,</i>
Soil formation	Raw materials	<i>such as West Nile Virus-</i>
Nutrient cycling		<i>carrying mosquitoes)</i>

All of these services have economic value here in Michigan, and all are promoted by healthy, intact ecosystems. **Diversity promotes ecosystem function, and disturbance deteriorates it.** For example, biodiversity promotes ecosystem stability [2] and productivity over time [3]. Biodiversity also mitigates the risk of invasibility [4, 5] and disease [6].

To elaborate on one example, biodiversity mitigates flooding and water pollution. Land that is logged for timber is less able to absorb rainwater. This surface runoff contributes to water pollution, and flooding after heavy rains. The Supreme Court is set to decide whether the Clean Water Act should regulate logging-induced water pollution later this month. In any case, it is clear that diverse, undisturbed land produces cleaner water, and mitigates flooding.

The harvest of raw materials, such as timber, is one of the most obvious economic benefits or natural resources. However, **the premise that the lumber industry itself does not benefit from biodiversity conservation is false.** Healthy forests depend on species diversity and genetic diversity to resist disease and alien species invasion such as the Emerald Ash Borer, native to Asia. A completely intact, protected forest may serve as a source of genetic diversity for plant and animal populations in surrounding forests where logging is permitted. Healthy forests, like healthy Michiganders, remain healthy due to functioning water regulation, erosion control, soil formation, nutrient cycling, and pollination. Intact ecosystems are crucial for maintaining these ecosystem functions, which in turn maintain the health of Michigan's forests as a whole.

In conclusion, some of the main short-term benefits of Senate Bill 78—allowing lumber companies and recreational vehicles increased access to Michigan forests—comes at a long-term cost. Not only do we directly depend on several ecosystem functions for our health (i.e., water supply, waste treatment), but also many sectors of our economy (agriculture, fisheries, outdoor recreation) directly count on other ecosystem functions, such as pollination, erosion control, nutrient cycling, water cycling, and water regulation. **If the DNR is not permitted to use sound scientific research to inform its biodiversity management strategies, inevitable degradation of Michigan's vital ecosystem functions will occur.**

Thank you,

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